

Town of Apex
Standard Specifications & Standard Details
Summary of Revisions
April 12, 2022

Section 100 Preliminary Considerations & Instructions

101 General

Revise the last sentence of the second paragraph to read “Such deviations from the TOWN’S minimum standards receiving such preliminary approval **by the Department Director** shall be clearly indicated at one location on the construction drawings, and labeled, “Exceptions to the Standard Specifications of the Town of Apex”.”

102 Submittal Requirements

Revise last sentence to read “Submittal of the construction drawings shall be made only after the project has received Site Plan approval.”

A. Initial Submittal,

1) Final Construction Plans

Revise to read “**1** electronic file submittal through IDT Plans. The plan size and content shall conform to the requirements outlined in Section 103 hereof.”

2) Storm Drainage Computations

Revise to read “**1 electronic** copy of complete storm drainage calculations, maps, and other supporting material shall be submitted, addressing the following special issues as applicable.”

5) Soil Erosion and Sedimentation Control Plan

Revise to read “**1 electronic** copy of the “Request for Plan Approval Form” and **1 electronic** copy of the “Financial Responsibility / Ownership Form” shall be submitted.”

B. Second Submittal

1) Final Construction Plans

Revise to read “**1** electronic file copy submittal through IDT Plans.”

2) "Water Distribution Extension Permit Application"

Revise “**1** original and **2** copies for review” to “**1** original for review”.

3) "Gravity Sanitary Sewer Extension Permit Application"

Revise “**1** original and **2** copies for review” to “**1** original for review”.

5) Storm Drainage Computations

Revise to read “**1 electronic** copy of computations, if revised after initial review as per Section 501.”

6) Wastewater Pump Station & Force Main Computations

Revise to read “**1 electronic** copy of computations, if revised after initial review.”

7) Soil Erosion and Sedimentation Control Plan

Revise to read “**1 electronic** copy of the *Request for Plan Approval Form* and **1 electronic** copy of the *Financial Responsibility / Ownership Form* shall be submitted, if revised after initial review.”

Revise second paragraph, first sentence to read “The Town of Apex will review the revised plans and, if they are satisfactory, the submitter will be requested to **upload final plans to IDT Plans** for approval signatures and **upload final CAD design file to IDT.**”

106 Record Drawings

Replace with the following.

“Record drawings which reflect “AS-BUILT” conditions must be submitted **electronically through IDTPlans** prior to start of warranty for roadways and/or public utilities to be maintained by the Town of Apex. The record drawings must be labeled “RECORD DRAWINGS” and signed by the Project Engineer of Record **and/or PLS**. An electronic file in AutoCAD format shall be submitted to the Town Engineer **through IDTPlans**. **A survey data file (.txt) denoting the coordinates and description for each utility feature in the project scope shall be submitted to the Town Development Services group.** All applicable information listed below shall be included on all “AS-BUILT” drawings:

NOTE: Record drawings of roadways and utilities are required prior to the beginning of the one-year warranty or acceptance by the TOWN.

All pdf sheets shall show base file (approved CD) in a transparent manner, surveyed data will be shown in a bold/solid color.

The “Record Drawing” plans shall be the certified plans sealed by a professional land surveyor locating the various features applicable to the project.

The “Construction Drawing” shall be the construction document designed and certified by a professional engineer who has periodically monitored the project throughout construction and agrees with the “Record Drawing” plan as defined above.

Record drawings are required for:

- **Water and/or sanitary sewer service connections**
- **Doghouse manhole for service connections**
- **Irrigation system connections**
- **Water main extensions**
- **Fire lines (sprinkler lines)**
- **Fire hydrants (including relocations of existing hydrants)**
- **Sewer main extensions**
- **Sewer outfalls**
- **Pump stations and force mains**

The following PE and PLS Certifications are required on each sheet of the Record Drawings:

I certify that these as-builts are accurate and that each of the items listed on the Town’s “Record Drawing Checklist” as contained in the Town of Apex Standard Specifications is provided on this set of record drawings ([#] total sheets in this set).

I certify that all of the information provided is field-verified record drawing information.

Name: _____ Date: _____

(Seal) _____
Signature Registered Land Surveyor

Name: _____ Date: _____
(Seal) _____
Signature Professional Engineer

The following Field Survey Certification Statement is required on the cover sheet of the Record Drawings and the Survey data file:

I, _____, as a duly registered Professional Land Surveyor in the State of North Carolina, hereby certify that the data shown on this drawing, obtained under my supervision, is an accurate and complete representation of what was constructed in the field, that the physical dimensions or elevations shown thus are as-built conditions and the facility was constructed according to the approved plans, except otherwise noted hereon.

Name: _____ Date: _____
(Seal) _____
Signature Registered Land Surveyor"

D. Water Distribution System

Revise part 3. to read "Location of valves, fire hydrants, meters, blow-off assemblies, bore and jack casings with distance locations, **provided in a survey .txt file that includes location data x,y,z.**"
Add part 6. to read "**6. Copy of the PLS certification indicating accuracy of data.**"

E. Sanitary Sewer System

Revise part 4. to read "Clean-out locations with distance locations **provided in a survey .txt file that includes location data x,y,z.**"
Add part 12. "**Copy of the PLS certification indicating accuracy of data.**"

Add the following paragraph to the end of the Section: "**For all structures and appurtenances an electronic coordinate survey text file (.txt) shall be submitted in the format of P,N,E,Z,D (Point Number, Northing, Easting, Elevation, Description). The descriptions used shall be common industry abbreviated terms (MH, CB, FH, WV, WM, CO, etc.) that are correctly labeled as they are in the CD file with any applicable reference numbers.**"

Section 450 Utility Trenches

452 Pipe Laying and Backfill

A. General Requirements

Delete the last sentence of part 6. a) 1).

Replace part 6. a) 2) with "**Specifications: The marking tape shall be made of polyethylene (or approved equivalent) material, 3-inches wide and a minimum of 3 millimeters thick, manufactured specifically for identification of buried utilities. The tape color shall be in accordance with the utility being installed:**".

Section 500 Storm Drainage

506 Stormwater Control Measures (SCMs) within the Primary and Secondary Watershed Protection Overlay Districts

Revise the second bullet to read “The outlet **structure** shall be constructed of precast reinforced concrete **and the outlet pipe shall be either reinforced concrete pipe (RCP) or corrugated polypropylene pipe (CPP).**”

Delete the third bullet “All water quality drawdown devices that penetrate the dam embankment shall be constructed of ductile iron pipe.”

Section 600 Water Distribution System

601 Water Distribution Pipe

A. Design

Add the following to part 1. Location, end of the first paragraph, “**All private water mains that connect to the Town’s water system shall also be designed in accordance with these specifications. Any private commercial water connection shall be metered and protected by a reduce pressure assembly listed on the most current Manual of Cross-Connection Control issued by the USC Foundation for Cross-Connection Control and Hydraulic Research. See Section 620.**”

Add to part 1. Location, end of the seventh paragraph, “**If water main is located within road right-of-way or on Town owned property there shall be no permanent structures, equipment, retaining walls, embankments, impoundments, landscaping, or other elements that would inhibit maintenance operations unless approved by the Water Resources Director.**”

Add to the end of part 1., “**All retaining walls shall have a separation from the easement boundary of at least a 1:1 ratio, vertical to horizontal. For example, if the retaining wall is 10 feet tall, it shall be placed no closer than 10 feet from the adjacent easement boundary.**”

602 Fire Protection

A. Fire Hydrants

2. Location

Revise part c), first sentence to read “In business, office and institutional, and industrial zoning the maximum distance between hydrants, measured along street centerline, shall be **in accordance with the latest version of the NC Fire Code.**”

Revise part d) to read “All premises where buildings or portions of the building are located **at distances** from a fire hydrant **that exceed those specified by Fire Code** shall be provided with approved on-site fire hydrants and water mains capable of supplying the fire flow required by the Fire Department.”

3. Specifications

Revise “Hydrants shall be furnished with a 5-inch Storz steamer” to “Hydrants shall be furnished with a **4.5-inch** steamer”.

603 Valves and Appurtenances

A. Valves

1. General

Add to the end of part a) **“Valves are required regardless of whether tee connection is cut-in or made by tapping sleeve and valve. Valve requirements are not enforced unless the branch line serves more than one parcel or has more than one connected service.”**

604 Water Main Taps and Services

A. Design

Revise part 11., first sentence to read “No services shall be made directly to water mains that are **18”** or larger.”

Add **“19. There shall be no size-on-size taps allowed. All taps must be at least one size smaller than the main being tapped.**

606 Testing and Inspections

B. Testing

5. Bacteriological and Turbidity Sampling

Revise part c) to read “Samples for laboratory analysis shall be collected by a **Town Representative** after flushing is completed. The Contractor shall set up sampling stations. **A Town Seal sticker shall be placed on the sample bottle. The Town is responsible for the delivery of the sample(s) to a testing laboratory certified by the North Carolina Department of Human Resources, Division of Health Services. The testing lab will document the condition of the seal upon receipt. The Town shall furnish the Contractor with a copy of the results prior to tapping any services.** All costs for laboratory testing shall be borne by the Contractor. Samples shall be taken at 2000 feet intervals, at the end of the main, at each branch connection, and each side of all cut-in connections.”

Add **“m) If the Inspector or any Town representative does not approve of the sampling location, equipment, or setup then the sample shall not be taken. Contractor shall only take samples when approved by the Inspector or Town Representative.”**

6. Tracer Wire and Marker Tape Testing

Add to the end of this part **“The contractor shall submit a report of all tracer wire and marker tape testing. The Town reserves the right to require a third-party testing company at any time, at the expense of the contractor.”**

607 Repair and Abandonment

Add **“8. Abandonment of Existing Water Services Contractors abandoning water services shall remove the entire service stub. When available, a mechanical plug shall be used to abandon the corporation stop. If equipment necessary to plug the main is not available, the corporation stop shall be turned off and capped. A ½” PVC pipe shall extend a minimum of 12” above the capped corporation stop, wrapped at least 3 times with caution tape to identify an abandoned tap. All remaining portions of the service stub shall be removed from the main to the right of way line and shall be disposed of properly.”**

Section 700 Wastewater Collection Systems

701 Gravity Sewer

A. Design

1. Main Location

Add to end of part h) **“If sewer main is located within road right-of-way or on Town owned property there shall be no permanent structures, equipment, retaining walls, embankments, impoundments, landscaping, or other elements that would inhibit maintenance operations unless approved by the Water Resources Director.”**

Add **“x) All retaining walls shall have a separation from the easement boundary of at least 1:1, vertical to horizontal. For example, if the retaining wall is 10 feet tall, it shall be placed no closer than 10 feet from the adjacent easement boundary.”**

B. Materials

Replace materials table with the following:

Diameter (in)	Depth (ft)*	Material
Any	≤ 4	DIP
8 – 15	$4 \leq 13$	PVC SDR 35 or C900 DR 18
8 – 20	$4 < D \leq 20$	PVC C900 DR 18 or DIP
> 20	Any	DIP
Any	> 20	DIP

702 Manholes

A. Design

1. Manhole Location, Siting, and Design

Revise part f), first two sentences to read **“In certain isolated circumstances standard free drops may be allowed, not exceeding 24-inches. If different size pipes, the smaller diameter pipe crown shall be positioned no higher than the larger diameter pipe crown to limit the drop.”**

2. Manhole Sizing

Remove **“with Extended Base”** from Manhole Sizing Guide table.

C. Installation

5. Epoxy Coating

Add **“c) Manholes manufactured by Armorock (or approved equal) may be used as an approved alternate to manholes that require epoxy coating.”**

703 Service Connection

A. Design

1. General Requirements

Revise g), second sentence to read **“Service lines shall be installed so that the crown of the service line matches the crown of the invert line (or higher) or shall be installed with a standard drop.”**

Add to the end of part g) **“All services shall be made via a boot connection when at a manhole.”**

704 Testing and Inspections

B. Sewer Main and Service Connection Testing

5. Video Assessment and Cleaning

Add to the end of part d) **“Dye may be required in order to see dips in the pipe and for approval by the Inspector.”**

Revise in part f) **“(flash drives and CD/DVD are also acceptable).”**

Section 800 Wastewater Pumping Stations & Force Mains

801 Pump Station General

A. Design Requirements

Delete the last sentence of part 5.

802 Pump Station Site and Structures

C. Structures

1. General

Add **“f) Structures manufactured by Armorock (or approved equal) may be used as an approved alternate for any structure that requires epoxy coating.”**

807 Wastewater Force Mains

A. Design

Add to end of part 2. **“If sewer main is located within road right-of-way or on Town owned property there shall be no permanent structures, equipment, retaining walls, embankments, impoundments, or other elements that would inhibit maintenance operations unless approved by the Water Resources Director.”**

Add **“15. All retaining walls shall have a separation from the easement boundary of at least 1:1, vertical to horizontal. For example, if the retaining wall is 10 feet tall, it shall be placed no closer than 10 feet from the easement.”**

Standard Details

Section 300 Streets

Detail 300.01 Street Typical Sections

Add 3:1 maximum slopes for grading tie-ins. Revise sidewalk cross slope to 1% to allow margin of error while still remaining ADA compliant.

Detail 300.04 Method of Removing Existing Curb

Expand removal to include both curb and gutter.

Detail 300.07 Driveway Apron

Add to Note 1: "EXCEPT WHEN CONNECTING TO AN ALLEY WIDTH MAY BE INCREASED TO ALLOW AN ADDITIONAL 9' WIDE PARKING PAD IF DISTANCE FROM THE ALLEY TO THE STRUCTURE IS LESS THAN 18'."
Add sheet 2 of 2, new detail for shoulder typical section.

Detail 300.08 Concrete Sidewalk

Revise sidewalk cross slope to 1% to allow margin of error while still remaining ADA compliant.

Detail 300.10 Street Cross Section Showing Utility Locations

Revise sewer depth of cover dimension to 3' from roadway subgrade, consistent with specification section 700.

Replace note with table:

VERTICAL SEPARATION	
UTILITY	DISTANCE (INCHES)
WATER & SEWER	18
WATER ABOVE STORM	24
WATER BELOW STORM DRAIN	18
SEWER & STORM	24
ALL OTHER UTILITIES	12

Detail 300.14 Street Geometric Standards

Add separate standards for Minor Collector Street, new row separate from Residential Street.

Detail 300.16 Pavement Widening Taper & Marking

Revise label "NCDOT W23-10 DELINEATOR" to "OBJECT MARKER OM3-R".

Detail 300.32 Bus Stop (NEW)

Section 600 Water Distribution System

Detail 600.01, ¾" & 1" Water Service & Meter Box, Sheet 2 of 2

Delete from note 6 "CAST IRON, ASTM A48, CLASS 25".

Detail 600.12 Air Release Manhole For Water Mains

Add "OR APPROVED EQUAL" to A.R.I D-040 Combination Air Valve callout.

Detail 600.14 Multiple Branch Services

Add "AND 1" (FOR RESIDENTIAL ONLY)" to note 1 regarding multiple service connections.

Section 700 Wastewater Collection Systems

Detail 700.02 Sanitary Sewer Tap & Service

Revise sewer depth of cover to 3' from roadway subgrade, consistent with specification section 700.

Detail 700.04, Sheet 1 of 3

Remove all references to steps in the manholes. Steps are no longer required.

Detail 700.04, Sheet 2 of 3

Remove all references to steps in the manholes. Steps are no longer required.

Detail 700.04, Sheet 3 of 3

Remove all references to steps in the manholes. Steps are no longer required.

Detail 700.07

Remove all references to steps in the manholes. Steps are no longer required.

Detail 700.08

Change "NON-SHRINK GROUT" callout to "BOOT CONNECTION". Where pipe enters manhole wall, non-shrink grout is no longer allowed.

Detail 700.09 (DELETE)

Manhole steps are no longer required.

Detail 700.20

Change minimum gate width from 12'-0" to 14'-0".

Add the following notes:

3. GATES MAY BE SINGLE OR DOUBLE PANEL AS LONG AS CENTERED ON THE PIPE.
4. FOR COMMERCIAL SITES, THE GATE WIDTH MUST BE AT LEAST 20'-0".